I CLAIM

1. A method for characterizing chromatic dispersion of an optical transmission link between a transmitter and a receiver, comprising:

providing said transmitter with an external modulator with a fixed alpha parameter;

operating said modulator alternatively in a non-inverting mode and an inverting mode for transmitting an optical signal to said receiver; and

for each mode, measuring the quality of said optical signal at said receiver.

2. A method as claimed in claim 2, wherein said step of providing comprises modulating a channel wavelength with a data signal to obtain said optical signal; and frequency chirping said modulator to obtain said fixed alpha.

3. A method as claimed in claim 1, wherein said step of operating said modulator comprises:

setting a first DC bias on the non-inverting slope of the transfer characteristic for operating said modulator in said non-inverting mode;

measuring a first value of a quality parameter of said optical signal at said receiver;

setting a second DC' bias on the inverting slope of the transfer characteristic for operating said modulator in said inverting mode; and

measuring a second value of said quality parameter of said data signal recovered by said receiver.

4. A method as claimed in claim 3, further comprising, whenever said modulator operates in said inverting mode, inverting said data signal before modulating said channel wavelength, while the polarity of said alpha depends on said mode.

5. A method as claimed in claim 1, further comprising determining when said transmission link operates in a 0-chromatic dispersion regime.

6. A method as claimed in claim 5, wherein said step of determining comprises:

comparing said first and said second values;

if there is a difference between said first and second values, said transmission link operates with a net chromatic dispersion; and

if there is no difference between said first and second values, said transmission link operates in a 0-chromatic dispersion regime.

7. A method as claimed in claim 2, further comprising storing said first DC bias against said first value and storing said second DC' bias against said second value to provide chromatic dispersion regime statistics.

8. A method as claimed in claim 7, further comprising predicting a chromatic dispersion regime based on said dispersion regime statistics.

9. A method as claimed in claim 1, wherein said quality parameter is any of an eye diagram and an eye contour of said optical signal recovered by said receiver, a bit error rate BER, a bit error rate versus voltage (BERV) graph and a Q of said data signal recovered by said receiver.

10. A method for characterizing chromatic dispersion of an optical transmission link between a local transmitter and a far-end receiver, comprising:

providing said transmitter with an external modulator having a fixed chirp;

setting a first DC bias for operating said modulator on the non-inverting slope of the transfer characteristic and transmitting a data signal modulated over a channel wavelength to said receiver;

measuring a quality parameter of said data signal recovered by said receiver, and storing said first DC bias against a first measured value of said quality parameter;

setting a second DC' bias for operating said modulator on the inverting slope of the transfer characteristic;

measuring said quality parameter of said data at said receiver, and storing said second DC' bias against a second measured value of said quality parameter; and

storing said first and said second values to provide chromatic dispersion regime records.

11. A controller for controlling operation of an optical transmission link established between a transmitter and a receiver, comprising:

at said transmitter, a mode controller for controlling the bias of a modulator provided with a fixed alpha, to alternate between a first DC bias and a second DC' bias; and

at said receiver, a signal quality detector for determining a quality parameter for a data signal received over said transmission link, for both said first bias and said second bias.

12. A controller as claimed in claim 11, further comprising means for establishing that said transmitter operates in a 0-chromtic dispersion regime whenever a first value of a signal quality parameter measured during said inverting mode is equal with a second value of said signal quality parameter measured during said non-inverting mode.

13. A controller as claimed in claim 11, further comprising means for setting said first DC bias and said second DC' bias.

14. A controller as claimed in claim 13, further comprising means for communicating said first and said second DC bias from said receiver to said transmitter.

15. A controller as claimed in claim 13, wherein said means for communicating comprises an overhead channel carried within the frame payload for said data signal.

16. A controller as claimed in claim 11, wherein said modulator is an Mach-Zehnder interferometer.

17. An optical transmitter of the type having a light source for providing a channel wavelength and a driving circuit for providing a data signal, comprising:

an external modulator provided with a fixed alpha, for modulating said data signal over said channel wavelength; and

a mode controller for operating said modulator in an inverting mode and an non-inverting mode; and

means for receiving a first DC bias and a second DC' bias from a remote signal quality detector for enabling said mode controller to alternate operation of said modulator between said respective inverting and non-inverting modes.

18. An optical receiver of the type having an optical-to-electrical detector and a signal quality detector for providing measurements of a quality parameter, comprising means for maintaining chromatic dispersion regime records for an optical communication link.

19. An optical receiver as claimed in claim 18, wherein said receiver further comprises means for setting a first DC bias and a second DC' bias based on said first and said second values and transmitting said first DC bias and said second DC' bias to said associated transmitter.